C. 5.—B.

United States Department of Agriculture,

DIVISION OF BOTANY.

GIANT KNOTWEED, OR SACHALINE.

GENERAL CHARACTER.

Giant knotweed, or sachaline, is a hardy, herbaceous perennial, 6 to 12 feet high, with strong, extensively creeping rootstocks, broad, somewhat heart-shaped, shining leaves nearly a foot in length, and small greenish-white flowers, which appear late in the season.

FIG. 1.—Giant knotweed, or sachaline.

HISTORICAL.

This plant was discovered by Dr. Weyrich near the western shores of Sakhalin, an island lying off the east coast of Siberia, growing along moist river banks, where it covered extensive areas. It was named *Polygonum sachalinense* by F. Schmidt, and first described in Maximowicz "Primitiæ Floræ Amurensis," published in Volume IX of the "Mémoires présentés à l'Académie Impériale des Sciences de St. Pétersbourg" in 1859. The genus *Polygonum*, to which sachaline belongs, is a large one, and contains such well-known plants as the knotgrass (*P. aviculare*) of our dooryards, the ornamental prince's feather (*P. orientale*), lady's thumb (*P. persicaria*), common smartweed, or water pepper (*P. hydropiper*), and black bindweed (*P. convolvulus*). Sorrel and bitter dock belong to the same family in the genus *Rumex*.

From the information at hand it appears that this Polygonum was introduced into Europe soon after its discovery, and first cultivated in the *Jardin d'Acclimatation* at Moscow. It was from that station that it was first introduced into France, as a decorative plant, in 1869. It was introduced into England in 1869 or 1870 by Mr. William Bull, and a few years later it was quite generally cultivated in the botanical gardens of Europe. In The Garden (London) for April 22, 1882, giant knotweed is referred to as a plant which has not yet been cultivated "excepting in botanical gardens, though as a decorative plant it eclipses *Polygonum cuspidatum*, being of much larger proportions." The writer here quoted goes on to say that the plant "has a striking appearance, either isolated on turf or in company with plants of similar character, and no better subject could be employed for naturalization in a semi-wild place, as it takes care of itself under any conditions. It grows luxuriantly in a moist subsoil, and hence is a capital plant for the margins of artificial water."

Plants of sachaline have been growing at Ames, Iowa, for twelve years having been introduced there from Russia by Prof. J. L. Budd.

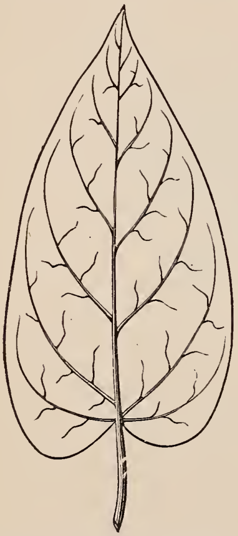

FIG. 2.—Leaf of sachaline.
(*Polygonum sachalinense.*)

FIG. 3.—Leaf of false sachaline.
(*Polygonum cuspidatum.*)

GIANT KNOTWEED AS A FORAGE PLANT.

The idea that this knotweed might possess some value as a forage plant under certain conditions originated in France in 1893, at a time when the ordinary fodder plants had failed on account of long periods of drought, and farmers were forced to look to almost any herbage which might serve as food for stock. It was under these conditions that it was discovered that cattle would eat the leaves and tender branches of the plant, and a communication describing its qualities and nature, suggesting the possibility that it might prove a valuable addition to the list of fodder plants, was made to the French Academy of

Sciences by M. Doumet-Adanson, and published in *Comptes Rendus.* This appears to be the first intimation of the existence of any forage value in sachaline, but the idea was at once taken up by others, and the hardiness, the rapid and vigorous growth, and other qualities of the plant were extolled and enlarged upon by interested parties.

Within the past year most extravagant accounts ot the value of sachaline for forage have appeared in American papers and seed catalogues, and it has been especially recommended as a plant for dry climates. From the native station of the plant—along moist river banks upon an island with a cold and very moist climate—and from the recommendations as to its culture by horticulturists who have had experience in growing the plant, it is very doubtful if it will prove a success in the arid regions of the West; in fact, it seems hardly probable that it can be grown there at all. At the Agricultural Experiment Station in Texas, seed of sachaline obtained from France was planted during the winter of 1894. The director of the station, in a published letter dated January 17, 1895, says that "the plants grew very irregularly and some of them now, having been transplanted, are 8 inches high * * * In ten months' growth they have proved a failure thus far * * *." At the date of writing the leaves had fallen from the plants, which were grown "under the best of hothouse and open air conditions, and they appeared as naked switches, varying in height from 1 to 10 inches.

All who have had experience with the plant advise caution in its introduction, because of its very strong, spreading, and persistent rootstocks, and this character was cited as an objection to it as decorative plant for parks and lawns. The editor of the Gardeners' Chronicle (London) in the number for July 22, 1893, says: "Few perennials have a nobler effect on a lawn, or anything where there is sufficient space, than *Polygonum sachalinense.* One drawback it has, and that is that it throws up its great asparagus-like shoots in profusion, and not always where they are wanted. A gravel path, as we know, offers no obstacle to this very 'pushing' intruder."

The company who claim to have introduced it into the United States as a forage plant says: "We do not recommend planting it on valuable soil, but on waste lands where nothing else will grow—swamps, ditches, meadows, rocky and sloping lands that can not be cultivated—but at the same time we would not hestitate to devote a good acreage to it wherever cattle are kept in quantity." A writer in the Rural New Yorker, who has had some experience with the plant, says: "If one has land on which nothing else will grow, try a few root cuttings [it is more readily propagated by root cuttings than by seed]. If the land will grow anything else, don't plant it * * *. Plant corn for feed, not *Polygonum sachalinense,* unless you want trouble." In Burpee's Farm Annual it is said by one who is familiar with the plant in Europe that the farmers in this country will be terribly disappointed if they "expect to realize the hopes that the glowing descriptions from Europe would seem to warrant." Both *Polygonum sachalinense* and *Polygonum cuspidatum* are valuable for "protecting high river banks and beds of quicksand, because they make a growth of roots that is simply marvelous."

CULTIVATION.

The following method of cultivating sachaline is taken from the Gardeners' Chronicle for February 17, 1894: "It is best to procure in winter, say, from January to April, seeds and root cuttings. On getting them, they should be stratified for multiplication with sand or sandy soil in a box or flowerpot and protected from frost. The beds of rootstocks or of seeds may be overlaid with a light layer of fine earth. In spring, when the buds of the stock begin to shoot, they should be placed in their final position, and thus vigorous roots of rapid growth are obtained. As to the seeds, when these begin to grow on the appearance of the radicle, they should be treated like flower or vegetable seeds, sown first in a garden in good, rich soil in rows, and afterwards put out into nursery beds, or in their final position. The double method of multiplication by roots and seeds enables a permanent plantation to be formed and combined. The roots at several yards apart yield early vegetation and well-established stock from the first. Young plants raised from seed planted at a distance of one yard apart soon fill the intervening space and cover all the plot."

No experiments have been made in this country in the cultivation of sachaline on any extended scale, nor have any tests been made of its feeding value. Reports from foreign countries state that cattle are fond of the leaves, and the chemical analyses which have been made indicate that it possesses highly nutritive qualities. In ordinarily moist climates its dock-like leaves and tender shoots may serve to supply fodder during periods of protracted drought when other forage fails.

F. Lamson-Scribner,
Special Agent.

Approved:
Chas. W. Dabney, Jr,
Assistant Secretary.
Washington, D. C., *February 26, 1895.*